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ABSTRACT

This article reports a study in which a sample of 89 White and 34 Spanish-language heritage children from ages 2 1/2 to 6 1/2 from the lower- and middle-classes responded to two cognitive measures (classification skill and gender knowledge), three verbal sex-typing measures (occupations, toys, and peer behaviors), and a behavioral sex-typing measure (toy play). The results included the following: (1) Moderate sex-typing was found for sex attribution of occupations. However, girls believed that women should perform the female jobs for them while boys were neutral; boys believed that men should perform the male jobs for them while girls were neutral. With increasing age of children, the match between attribution and census reality increased. (2) Boys attributed neutral toys to males while girls attributed them to females. With age, female toys were attributed more to females. Children's interests in all the toys were high. Boys were more interested in male toys than girls were; there were no differences in interests for female or neutral toys. (3) Children with higher gender knowledge scores sex-typed the female peer behaviors more in the female direction. Overall, children view the female items as applying to both sexes and the male items to boys. (4) Girls played equally long with female, male, and neutral toys, while boys played longest with male toys and equally with female and neutral toys. Other results are discussed. (Author/BH)

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# MULTIDIMENSIONAL ASPECTS OF YOUNG CHILDREN'S SEX-ROLE DEVELOPMENT

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Abstract

A sample of 123 White and Spanish-language heritage children from 2½ through 6½ from the lower- and middle-classes responded to two cognitive measures (classification skill and gender knowledge), three verbal sex-typing measures (occupations, toys, and peer behaviors), and a behavioral sex-typing measure (toy play). Results from the sex-typing measures were analyzed for effects related to age, sex, ethnicity, and cognitive variables. Basic results include the following:

1. Children were in agreement, showing moderate overall sex-typing for the attributional and reality aspects of occupations. However, girls believed that women should perform the female jobs for them while boys were neutral; boys believed that men should perform the male jobs for them while girls were neutral. With increasing age, the match between attribution and census reality increased.

2. Boys attributed neutral toys to males while girls attributed them to females. With age, female toys were attributed more to females. Children's interests in all the toys were high. Boys were more interested in male toys than girls were; there were no differences in interests for female or neutral toys. Recall of male and female toys increased with age.

3. Children with higher gender knowledge scores sex-typed the female peer behaviors more in the female direction. Overall, children view the female items as applying to both sexes and the male items to boys.

4. Girls played equally long with female, male, and neutral toys, while boys played longest with male toys and equally with female and neutral toys.

5. Age was related to the responses on some of the sex-typing measures, gender knowledge to others; both were related to some of the measures.

MULTIDIMENSIONAL ASPECTS OF YOUNG CHILDREN'S SEX-ROLE DEVELOPMENT

Much of a child's sex-role and gender knowledge is learned during the preschool years. During this time the child learns gender identity and constancy -- the knowledge that s/he is a girl or boy, that superficial transformations such as hairstyle or dress do not change one's sex, and that there are genital differences between the sexes. The child also learns sex-typed attitudes, which provide the psychological basis and justification for more general sex role stereotypes about the appropriateness of various behaviors for men and women. These, in turn, often support the dichotomous sex roles traditionally open to men and women in most Western cultures.

The majority of recent research examining how children learn about gender and sex-roles has been guided by two major theories: social learning theory and cognitive development theory.

## Social Learning Theory

Briefly, social learning theory stresses the importance of environmental input into the sex-role learning process. These theorists believe that the learning of sex-roles occurs through discrimination of sex-related cues (clothes, hair, jewelry, etc.), parental/teacher reward or punishment for behaviors considered sex-appropriate or inappropriate, and model observation. Stereotypic models are also found in children's books, television, movies, and so on. Simply put, sex-typed activities are seen as a function of one's entire social learning history (Mischel, 1966).

### Research from a Social Learning Perspective

Most of the research on children's sex-role development has been based on a social learning model. Studies generally examine differential

treatment and modeling cues given by important adults, peers, and symbolic models to boys and girls, or they evaluate the amount of sex-typing present in children's attitudes and behaviors. Occasionally, studies combine these two aspects. The social learning aspects of our research are concerned with the content of children's behaviors and attitudes. These aspects encompass several of the major content areas studied by other researchers: attitudes about toys and actual play behavior with toys; attitudes about adult occupations; and attitudes about general behavioral dispositions of peers.

Toys and play behavior. Sex-typed toy preference has been examined primarily from a verbal approach, although more observational research has been done in the past few years. The basic pattern of results from studies which ask children to verbally choose or sex-type toys has shown that boys state preferences for culturally sex-appropriate toys as early as three years of age (Fling & Manosevitz, 1972; Rabban, 1950); with age through the elementary school years, boys increase their sex-appropriate choices (Brown, 1957; DeLucia, 1963; Hartup & Zook, 1960) and decrease their sex-inappropriate ones (Hartup, Moore, & Sager, 1963). The pattern for girls is not as clear, however. Some studies have found that girls select culturally sex-appropriate toys (DeLucia, 1963; Fling & Manosevitz, 1972; Hartup & Zook, 1960; Rabban, 1950) while others have found that they select sex-inappropriate toys (Brown, 1957; Ross & Ross, 1972). Most of the former studies that examine age effects have concluded that girls' sex-appropriate choices increase with age (DeLucia, 1963; Hartup & Zook, 1960) and sex-inappropriate ones decrease (Hartup, Moore, & Sager, 1963). These studies also have shown that boys tend to be more sex-typed than girls at comparable ages (Brown, 1957; DeLucia, 1963; Minuchin, 1965) and that both boys and girls make more culturally sex-

appropriate toy choices for boys (Ross & Ross, 1972).

Although there are many fewer observational studies of children's actual play behaviors with toys than there are verbal studies, most of the observational studies have found sex differences in play behavior. Goldberg and Lewis (1969) found that 13-month-old boys and girls played with similar toys, although girls spent more time with toys requiring fine motor coordination and boys spent more time with toys requiring gross motor coordination. Fagot (1974) studied a small sample of toddlers, 18- to 24-months, at their homes. She found that girls played more with soft toys and dolls and dressed up in adult clothes, while boys engaged in more block play and manipulation of objects and toys. Fagot and Patterson (1969), in an observational analysis of three-year-old children's play behavior in the preschool setting, found that girls played more with art materials, while boys played more with blocks and transportation toys. They also concluded that both sexes spent equal time in sex-appropriate activities, but that girls spent less time in sex-inappropriate activities than boys did; however, this sex difference was not statistically tested.

In a study designed to examine preschool children's play with adult-validated sex-typed and neutral toys, girls played longer with culturally-defined neutral toys than with either feminine or masculine toys, and equally long with the two sex-typed sets of toys. Boys played longest with masculine toys and equally long with feminine and neutral toys. There were no consistent age trends in play. The children were highly concordant between their verbal sex-typed attributions of the toys and their play, but younger children were more consistent than older children (Schau, Kahn, Diepold, & Cherry, 1979).

Occupations. Most of the occupational research has examined children's free-choice personal vocational choices. As early as preschool age, boys and girls differ in their expressed personal vocational decisions. In general, girls express interest in fewer and more traditionally feminine jobs in contrast to the wider-ranging, often adventuresome, and traditionally masculine choices of boys (Beuf, 1974; Tremaine & Schau, in press). When asked in a fixed-choice format to indicate whether or not they would like to engage in specific occupations, girls expressed interest in female jobs and boys in male jobs (Tremaine, Schau, & Busch, 1979).

Also, children attribute many job skills and/or preferences exclusively to women or to men. This effect is more marked in preschool and younger children than in older elementary school children (Garrett, Ein, & Tremaine, 1977; Shephard & Hess, 1975). Also, some research has shown that girls tend to be more liberal in their attributions than boys (Shephard & Hess, 1975; Tremaine, Schau, & Busch, 1979).

Children's sex-typing of preferences for one or the other sex to perform a specific service also increases with age from early preschool through late elementary school. Unlike attributions, girls are more sex-typed for jobs culturally defined as female, while boys are more sex-typed for male jobs (Tremaine, Schau, & Busch, 1979).

Very little research has examined the consistency between various aspects of children's occupational sex-typing. In one study, the match between children's attributions and census reality, service preferences and reality, and attributions and service preferences increased with age from three to nine years of age. Boys' match scores between service preferences and reality and between attributions and personal job choices were higher than girls' (Tremaine, Schau, & Busch, 1979).

General behavioral dispositions of peers. There is some indication that younger preschool children (age 3) are less sex-typed than older children (age 5) in their beliefs about sex-role standards for peers and adults in relation to intelligence, play and work activities, androgynous activities, and affect expression (Flerx, Fidler, & Rogers, 1976). However, even children of 2 to 3 have some definite sex-typed ideas. Kuhn, Nash, and Brucken (1978) found that young children said that girls liked to play with dolls, to cook dinner, to clean the house and so on; occupations for women included nurse, teacher, and cleaning house. Boys, on the other hand, liked to play with cars, to help their fathers, to hit, and as adults will be bosses and mow the lawn. Several other behaviors were sex-typed by boys or girls, but not by both.

Several observational studies have dealt with aggressive behavior in children (e.g., McCandless, Bilons, & Bennett, 1961; Pederson & Bell, 1970; Serbin, O'Leary, & Kent, 1972; and Whiting & Pope, 1974). All of these have indicated that boys are consistently more aggressive than girls and exhibit more rough-and-tumble play than girls. Whiting and Pope (1974) also observed boys attempting to control peers (i.e., being "bossy") more often than girls.

In classroom settings, girls observed were more dependent on the teacher, followed teacher instructions, and cooperated more with the teacher (Bell, Weller, & Waldrop, 1971; and Serbin, O'Leary, Kent, & Tonick, 1973).

## Cognitive Developmental Theory

Cognitive developmental theory, on the other hand, emphasizes the relationship between a child's cognitive structure and her/his understanding of the category of gender. These theorists postulate that, by the age of 5 to 7, children have learned the concept of gender, although the

concept continues to change with age and cognitive development (Emmerich, Goldman, Kirsh, & Sharabany, 1976 & 1977; Kohlberg & Ullian, 1974). Kohlberg and Ullian (1974) stated that the idea of gender "is the bedrock of later sexual and sex-role attitudes"(p. 210). Thus, gender provides an important category for organizing social perceptions and sex-role expectations and behaviors.

According to these theorists, socialization is a selective process in which aspects of the social environment are incorporated into the individual's current mode of thinking and action through assimilation and accommodation. "Current" is a key word, because as intellectual growth continues to change and develop through life, so do the individual's views on sex-roles (see Ullian, 1976).

Research from a Cognitive Developmental Perspective

Research stemming from a cognitive developmental view examines variables related to understanding gender, rather than sex-roles. Results have shown that by age 3 children can correctly identify their own, and partially correctly identify others' gender (Kohlberg & Ullian, 1974; Kuhn, Nash, & Brucken, 1978). By the age of 4, they can correctly identify others and begin to show an awareness that gender does not change. Between 4 and 6 or 7, children first realize that gender does not change across time (if you are a girl now, you were a girl baby and will grow up to be a woman) and then understand that gender does not change with changes in appearance (e.g., hair or dress), behaviors (e.g., even if Jack acts like a girl, he is a boy), and motivation (e.g., I am a girl even if I want to be a boy) (Emmerich & Goldman, 1972; Slaby and Frey, 1975). Generally, between 7 and 9 children understand that the final determination of gender is based on genitals, which do not change except in extreme circumstances (McConaghy, 1979). Age is generally moderately

related to gender constancy (McConaghy, 1979; Slaby & Frey, 1975).

Research Combining Social Learning and Cognitive Developmental Views

Thus, either social learning or cognitive developmental theory has guided most of the research into young children's sex-role and gender knowledge. The two models stress the use of different methodologies and examine different aspects of sex-role development (sex-roles or gender knowledge). As Emmerich (1973) suggested, sex-role research is needed which incorporates alternative theories into a common research framework. A few research studies have used this approach. Thompson (1975), for example, looked at gender constancy (including labeling of self), behavior preferences, social environment, and awareness of sex-role stereotyping in 2- to 3-year-old children. By 2 years, all of the children were able to identify the sexes, and common labels such as "boy" or "mommy" were applied more correctly than pronouns. The children were aware of certain cultural cues (i.e., clothes) that are stereotyped.

At 30 months children accurately recognized the sexes, and used noun labels and pronoun labels. Most identified themselves with the proper sex and were quite aware of sex-typing of clothes and household articles.

By 36 months they were certain of others' sex, their own sex, and cultural stereotyping. Evaluative and gender labels influenced preferential behavior: these children consistently chose those items, such as apples, dolls, etc., that the experimenters labeled as "good" or "same-sex."

Slaby and Frey (1975) found that high gender constancy subjects spent more time watching models than low gender constancy subjects. High gender constancy boys spent more time watching male and female models and more time watching the male model only than low constancy boys.

Parallel results were found for the girls, although they were not significant.

Conner and Serbin (1977) looked at young children's behaviors and activities in a nursery school setting and their relationships to three cognitive measures (vocabulary, visual-spatial ability, and block design). They found that the vocabulary measure was positively correlated with both boys' and girls' preference for "sex-appropriate" activities. For boys only, visual-spatial ability was positively correlated with preference for masculine activities.

Tremaine, Schau, and Busch (1979) examined the relationship between classification skill, as measured by a Piagetian task, and several aspects of occupational sex-typing, including the children's consistency between several of these aspects. In general, age, not classification skill, was related to the children's sex-typing scores.

Purpose of the Study

Most of these projects have studied one or a limited number of aspects of sex-role development using primarily samples of middle-class White children. The current project involves middle- and lower-class White and Spanish-language heritage children. We have also combined aspects of both major theories in an attempt to further explicate and interrelate children's verbal stereotypes, sex-role behaviors, and cognitive development.

## Methodology

### Subjects

Three preschool/daycare centers in a Southwestern urban area were selected to represent different educational methods and to assure a sample of children from various socio-economic levels. The first care

center was a private Montessori school (42 subjects) serving upper-middle-class, professional families, although a few scholarships were available. The second was a private care center (61 subjects) located in a Christian church and serving middle-class families. The third was a state-supported care center (20 subjects) serving lower income families. The first two care centers were predominantly White, the other was predominantly Spanish-language heritage.

We received parental permission to interview 168 children; 123, aged 2½ to 6½ years, actually responded to some or all of the instruments. About half of the children were female and half were male. A child was considered Spanish-language heritage if his/her last name was Spanish and/or if her/his teacher confirmed that at least one parent was of Spanish-language heritage. Our sample included 89 White children and 34 Spanish-language heritage children.

Instruments

Instruments from previous research were modified and new instruments devised to assess young children's gender knowledge and cognitive development and to quantify their attitudes and behaviors toward masculine, feminine, and neutral items. After developing the instruments to fit our particular needs, they were piloted on a few children. The instruments were then revised again.

Cognitive instruments. Two instruments were used to assess different aspects of cognitive development.

Gender knowledge measured children's gender identity and the extent of their understanding that gender does not change with time, behavior, or external changes in appearance. The instrument, similar to ones used by Emmerich and Goldman (1972) and Slaby and Frey (1975), used Native American paperdolls, Spanish-language heritage paperdolls, and White paperdolls,

with children randomly assigned to one type of paperdoll. Questions dealt with gender identity ("Is Janie a girl paperdoll or a boy paperdoll?"), time stability ("When Juan grows up, will he be a woman or will he be a man? Why?"), and gender constancy over situational changes ("If Juanita plays with trucks and does things boys like to do, will she be a girl or will she be a boy? Why?") in regard to the paperdolls and the child her/himself.

Classifications, the second cognitive instrument, was devised by Kofsky (1966). The children were shown groups of blocks and asked questions based on size, shape, color, and number. Several classification skills were measured, including consistent sorting, exhaustive sorting, multiple class membership, whole equals sum of its parts, and conservation of hierarchy.

Sex-typed behavior. The toy play instrument, based on an instrument devised by Schau, Kahn, Diepold, and Cherry (1979), measured children's actual sex-typed toy behavior. About 80 undergraduate and graduate students in the College of Education, University of New Mexico, were asked to rate a large group of toys on a 5-point scale from very masculine to very feminine. A toy was considered male or female if 75 percent or more of the raters agreed on such a designation, and neutral if 67 percent agreed. Three sets of approximately equivalent toys were chosen. In the order of feminine, neutral, and masculine, the toy sets included: doll house, McDonald's hamburger stand, and truck garage; stove, cash register, and tool box; and sewing machine, camera, and drill. For this instrument, each child was placed in a room with the three sets of toys and allowed to play for five minutes.

Verbal sex-typing. Three instruments dealt with the children's verbal sex-typing of a group of toys, peer behaviors, and adult occupations.

Verbal toy sex-typing measured the children's verbal stereotypes about the toys used in the "Toy Play" instrument. The child was asked whether girls, boys, or both boys and girls would like to play with each toy (attribution), whether the child would like to play with each toy (personal preference), and, at the end of the interview, to recall as many of the toys as possible (recall). This also is based on the instrument developed by Schau, Kahn, Diepold, and Cherry (1979). In anticipation of non-verbal children, line drawings were prepared showing four boys' faces, four girls' faces, and two girls' and two boys' faces. The children could then point to their response or respond vocally. Children were randomly assigned to one of two orders of toy presentation.

Occupational sex-typing examined children's verbal stereotypes about adult occupations. It used two jobs which, according to the U.S. census (1973),are 75 percent female (nurse and teacher of young children), two jobs that are 75 percent male (police officer and truck driver), and two jobs which are about equally male and female (movie star and sales clerk). The occupations were also chosen so the children would be familiar with them. The children were asked whether they thought men, women, or both would like that job the best (attribution); which group the children would like to have perform that job when it directly involved them (service preference); and which group they had actually seen doing that job (seen reality). This is an extension of an instrument by Tremaine and Schau (in press). Again, drawings of faces (men, women, and both women and men) were used to minimize the need for vocalization.

Peer sex-typing measured the children's verbal stereotypes about their peers' behavior. Research has shown sex differences in young children for the nine behaviors described: liking to be near the teacher -- female; obeying the teacher -- female; asking the teacher for help --

female; playing rough -- male, being bossy -- male; climbing -- male; crying -- female; name calling -- male; and showing off -- female. These behaviors have been found to be sex-typed by several researchers, including Bell, Weller, and Waldrop (1971); Conner and Serbin (1977); Kuhn, Nash, and Brucken (1978); McCandless, Bilons, and Bennett (1961); Pederson and Bell (1970); Serbin, O'Leary, Kent, and Tonick (1973); and Whiting and Pope (1974). The children were asked to attribute each behavior to girls, boys, or both boys and girls. The instrument is an extension from Kahn and Tremaine (1979). Again, drawings of children's faces were used with non-verbal children.

Interviewers

Interviewers were students in the College of Education or senior citizens contacted through an employment service. Training sessions lasted 2 to 3 hours and interviewers were given detailed direction sheets.

Spanish-speaking interviewers were available for children who were not comfortable speaking in English.

Procedures

Interviewers worked in one school until all interviews were completed and then proceeded to another school. Children were assigned to interviewers such that they talked with at least three of the four sex-ethnicity combinations (White male and female, Spanish-language heritage male and female); within this constraint, assignment was random. The children were also randomly assigned to the six instruments so that the order of presentation varied, except that the two toy instruments were not scheduled together. Children were usually presented with two instruments in each of three 15- to 30-minute sessions. The sessions were planned to be one to three weeks apart; the mean time between sessions was three weeks.

The toy play interview was videotaped; the other interviews were audiotaped. All audiotapes were coded independently by two people. The videotapes were viewed by two people, who timed how long and in what order the children played with each toy. The coders worked together until their times on each toy agreed within three seconds.

## Results

Our goal was to interview all children with each instrument. Due to illness, absence, leaving the care center, and interviewer error, this goal often was not accomplished. Thus, the following analyses contain different numbers of children, as indicated in the reported degrees of freedom.

In general, the cognitive measures were scored in the traditional manner; a child had to give an appropriate answer and an accurate justification to receive points. The aspects of the sex-typing measures that asked for an attribution or preference by sex were scored by giving the child a 1 for a "female" answer, a 2 for "both females and males," and a 3 for "male." These individual items were summed to form "meaningful" scores, e.g., the children's sex-typed attribution of the three toys culturally defined as female. Scores for each instrument are discussed below.

The results were analyzed using specific multiple regression techniques, sometimes called backward regression. The contribution of each independent variable to both a multivariate set of related dependent variables (e.g., the children's three scores that reflected their sex-typed attributions of culturally-defined female, male, and neutral toys) and to each of those dependent variables separately was examined. Since several scores were generated for each child, the comparison alpha level was

lowered to .0025 to hold the experiment-wise alpha level at .05 (Kirk, 1968). All effects reported below are significant at the $p \leq .0025$ level.

The independent variables for the analyses of the sex-typing measures included: age (in weeks), ethnicity (Spanish-language heritage, White), sex (female, male), and their interactions. When a curvilinear trend was suspected, the quadratic component of age also was included, although none were significant. In addition, the cognitive variables of classification score and gender knowledge score were used as independent variables.

Cognitive Results

Classification scores. These scores were obtained as a general Piagetian measure of children's classification skills. Each child received one point for correct answers and justifications of the set of questions which corresponded to each of the five aspects of classification; thus, scores could range from 0 (all incorrect) to 5 (all correct). General results are reported to provide a clear picture of classificatory skill in this sample.

The age by ethnicity interaction was significant ($F = 11.25$; $df = 1,90$), accounting for 11 percent of the variance. This ordinal interaction was due to the low scores of the two Spanish-language heritage children, age 6. Otherwise, the scores for each ethnic group increased quite consistently with age, as would be expected. Thus, the interaction is of little importance.

Ethnicity was significant ($F = 10.09$; $df = 1,90$), accounting for 10 percent of the variance. White children ($M = 2.02$; $sd = .91$) had consistently higher scores than Spanish-language heritage children ($M = 1.38$; $sd = .86$).

Age was significant ($F$ = 17.48; $df$ = 1,90), sharing 17 percent of the variance in the classification scores. Classification skill increased with age ($r$ = .40).

No other effects were significant.

Overall, the mean level of classification skill was low ($M$ = 1.82; $sd$ = 0.94). Even the oldest children averaged only 2.57 correct responses.

Gender knowledge

Total score. A total score was calculated to use as a measure of the children's cognitive development in relation to the specific area of gender. A child received one point for a correct answer and justification for each question; the possible range was 0 to 16.

The ordinal interaction between age and ethnicity was significant ($F$ = 16.57; $df$ = 1,106), sharing 14 percent of the variance in the total knowledge scores. As age increased, the difference between the scores of White and Spanish-language heritage children also increased. Simple effects analyses showed that age was significantly related to total scores only for Whites ($F$ = 38.89; $df$ = 1,73), accounting for 35 percent of the variance; as age increased, so did total scores ($r$ = .59). Age was not significantly related to total score for Spanish-language heritage children.

Age also was significant ($F$ = 33.96; $df$ = 1,106), accounting for 24 percent of the variance. Total score increased linearly with age ($r$ = .49). This effect must be interpreted in conjunction with the age by ethnicity interaction.

Ethnicity was significant ($F$ = 9.93; $df$ = 1,106), accounting for 9 percent of the variance. On the average, White children ($M$ = 9.08; $sd$ = 3.07) were more constant at all age levels than were Spanish-language heritage children ($M$ = 7.15; $sd$ = 2.56).

On the average, children answered correctly and justified 8.49 (sd = 3.05) questions. Classification skill was significantly related to total gender knowledge score ($F$ = 25.44; df = 1,82), sharing 24 percent of the variance. Higher classification scores were associated with higher gender knowledge scores.

Other scoring methods. Several other methods of scoring this interview are currently being analyzed. These include the traditional scoring of identity, time stability, and situational constancy; a scoring of self, male other, and female other; and a scoring of self and other. Preliminary results indicate patterns that basically follow those described above: significant age by ethnicity, age, and classification effects, with ethnicity occasionally significant.

Sex-typing results

Peer sex-typing. Each child was given two scores. One reflected his/her sex-typed attributions for the female-associated behaviors; scores on the four female-related items were summed (range: 4-12). The other reflected her/his sex-typed attributions on the male items; scores on these five items were summed (range: 5-15). Lower scores indicated female attributions.

The only significant effect was that of total gender knowledge score ($F$ = 7.76; df = 2,72), sharing 18 percent of the variance. This effect was due to the relationship between the female-related items and total gender knowledge score ($F$ = 15.36; df = 1,72); children with higher gender scores were more likely to attribute these behaviors to girls ($\beta$ = -.42; $r$ = -.41). Male-related item scores were not associated with gender scores either multivariately or univariately. No other effects were significant.

Overall, children did not associate the female items with their female peers ($M$ = 7.66, $sd$ = 1.67, neutral score = 8.00) but did slightly associate the male items with their male peers ($M$ = 11.38, $sd$ = 1.98, neutral response = 10.00).

Occupation scores

Attributions. Each child was given three scores. One consisted of the sum of their attributions given to the two culturally defined female jobs, a second was the sum for the two male jobs, and a third was the sum for the two neutral jobs. Each score ranged from 2 (women) to 6 (men) with 4 being neutral.

There were no significant effects.

On the average, children moderately attributed female jobs to women ($M$ = 3.18; $sd$ = 1.08), moderately attributed male jobs to men ($M$ = 4.80; $sd$ = 1.07), and attributed neutral jobs to both sexes ($M$ = 4.10; $sd$ = 1.07).

Service preferences. Each child again was given three scores. One consisted of the sum of their statements about the sex they would prefer to have perform the two culturally defined male jobs for them, a second for the two female jobs, and a third for the two neutral jobs. Again, scores ranged from 2 (women) to 6 (men), with 4 as the neutral score.

The ordinal age by sex interaction was significant ($F$ = 6.30; $df$ = 3,78), accounting for 20 percent of the variance. Simple effects analyses did not indicate that age was significant for either sex separately. For male service-preference choices ($\beta$ = .26; $r$ = .34), boys were much more masculine than girls, who were quite neutral in their preferences. The female service-preference choices ($\beta$ = .26; $r$ = .33), boys and girls showed increasing divergence past age 4, with girls

preferring women and boys either sex. Neutral jobs were not important in the effect.

Sex was significant ($F$ = 5.85; $df$ = 3,78), sharing 18 percent of the variance. Again, male ($\beta$ = .27; $r$ = .34) and female ($\beta$ = .24; $r$ = .31) jobs were important in the effect. For female jobs, girls ($M$ = 3.09; $sd$ = 1.09) preferred women more than boys did ($M$ = 3.82; $sd$ = 1.19), with boys' average responses quite neutral. For male jobs, boys ($M$ = 4.78; $sd$ = 1.04) preferred men more than girls did ($M$ = 4.07; $sd$ = 1.21), with girls' average responses quite neutral.

No other effects were significant.

On the average, children were only slightly masculine in their service preferences for male jobs ($M$ = 4.43; $sd$ = 1.78), slightly feminine for female jobs ($M$ = 3.46; $sd$ = 1.19), and near neutral for the neutral jobs ($M$ = 3.73; $sd$ = 1.09).

Child's reality. Each child was given three scores: one was the sum of the child's reality responses to the two female jobs, a second to male jobs, and a third to neutral jobs (range for each score: 2-6).

No effects were significant.

On the average, children said they had seen mostly women perform the female jobs ($M$ = 3.00, $sd$ = 1.04), mostly men perform the male jobs ($M$ = 4.85; $sd$ = 1.15), and both sexes perform the neutral jobs ($M$ = 4.13; $sd$ = 1.36).

Consistency among occupation scores. Each child was given three scores that examined her/his consistency among the occupation scores and between each occupation score and census reality. One reflected the numbers of jobs the child ascribed to the same sex(es) in her/his attribution of each job and his/her service preference assignment for that job (match between attribution and service preference). A second indicated

the consistency between attributions and reality as described by the census. The third looked at the match between service preference and reality. Each score ranged from 0 (completely inconsistent) to 6 (completely consistent), with 2 as chance.

No multivariate effects were significant. However, the match between a child's attributions and reality was significantly related to age univariately ($F$ = 12.57; $df$ = 1,77), accounting for 11 percent of the variance. As age increased, consistency also increased ($r$ = .33).

On the average, the children's consistency between attributions and reality was 3.01 ($sd$ = 1.28), between attributions and service preferences was 3.88 ($sd$ = 1.60), and between service preference and reality was 2.61 ($sd$ = 1.23).

Verbal toy sex-typing

Attributions. Each child was given three scores: one consisted of the sum of her/his attributions to culturally defined female toys, a second to male toys, and a third to neutral toys (range on each score: 3 to 9; low scores indicated female attributions; 6 was neutral).

The age by sex ordinal interaction was significant ($F$ = 10.65; $df$ = 3,84), accounting for 28 percent of the variance. Responses to neutral toys were the basis of this interaction ($F$ = 20.19; $df$ = 1,84; $\beta$ = .45; $r$ = .51). At the youngest ages, each sex attributed these toys to her/his own sex. With increasing age, the attributions of both sexes approached neutral but still showed some own-sex influence.

Sex was significant ($F$ = 13.17; $df$ = 3,84), sharing 32 percent of the variance. Again, the neutral toys caused this effect ($F$ = 22.90; $df$ = 3,84); $\beta$ = .47; $r$ = .53). Boys attributed these toys to males ($M$ = 6.86; $sd$ = 1.40) and girls to females ($M$ = 5.36; $sd$ = 1.06).

Age was significant ($F$ = 9.51; $df$ = 3,84), sharing 25 percent of the variance. This effect was due primarily to the female toys ($F$ = 18.02; $df$ = 3,84; $\beta$ = -.43; $r$ = -.47); with increasing age, children's attributions of these toys changed from neutral to feminine.

On the average, children viewed the culturally defined female toys as quite neutral ($M$ = 5.35; $sd$ = 2.08), the neutral toys as neutral ($M$ = 6.23; $sd$ = 1.45), and the male toys as somewhat male ($M$ = 7.07; $sd$ = 1.39).

Personal preference. This set of three scores consisted of: the number of times a child indicated that s/he personally would like to play with the culturally defined female toys; a second for the male toys; and a third for the neutral toys (range for each score: 0-3).

The age by sex by ethnicity interaction was significant ($F$ = 6.47; $df$ = 3,78), accounting for 20 percent of the variance. The interaction was due to the children's responses to the male toys ($F$ = 17.86; $df$ = 1,78; $\beta$ = .53; $r$ = .38). White boys across ages consistently indicated that they would like to play with these toys ($M$ = 2.90; $sd$ = 0.31) and White girls across ages consistently indicated a moderate desire to play with these toys ($M$ = 1.62; $sd$ = 1.13). The pattern for Spanish-language heritage children was quite different. The girls increased their preferences for male toys with age and, at the oldest ages, matched the boys' preferences, which were relatively consistent and high across ages.

The age by sex ordinal interaction was significant ($F$ = 13.62; $df$ = 3,78), sharing 34 percent of the variance. This, again, was due to the male toys. With increasing age, boys maintained their high interest in the toys, while girls' interest decreased.

The sex effect was significant ($F$ = 12.16; $df$ = 3,78), sharing 32 percent of the variance. The effect, again, was due to the male toys. Boys were more interested in these toys ($M$ = 2.80; $sd$ = 0.55) than were

girls (M = 1.84).

Overall, interest in all toys was high. On the average, children said they wanted to play with 2.34 (sd = 0.98) of the 3 female toys, 2.51 (sd = .93) of the 3 neutral toys, and 2.33 (sd = 1.04) of the 3 male toys.

Recall. Each child was given three scores: one that indicated the number of female toys recalled, one for male toys, and one for neutral toys (range for each: 0-3).

Age was significant (F = 5.77; df = 3,77), sharing 18 percent of the variance. This effect was due primarily to the male toys (F = 5.73; df = 1,77; β = .32; r = .40), although univariately female toys were also important (r = .33). With increasing age, more toys of both types were recalled. Even at age 6, however, only an average of 4.5 of the 9 toys were remembered.

Consistency scores. Three consistency scores were developed to assess the children's match between the three aspects of this instrument. One indicated the proportion of toys that had been attributed to the child's own sex and recalled, a second the proportion that had been attributed to the child's own sex and received a "yes" personal preference, and a third the proportion that a child recalled and said "yes" to (range for each score: 0 to 1).

No effects were significant.

Toy play scores. Each child was given three scores. One reflected the proportion of her/his play time spent playing with culturally defined female toys; the second the proportion of time spent with male toys; the third the proportion of time spent with neutral toys (range of each: 0 to 1).

The age by sex interaction was significant (F = 9.95; df = 2,96), sharing 17 percent of the variance. This interaction effect was due to

the scores on the male and neutral toys, not the female toys.

Boys between the ages of about 3 and 6 spent more play time with male toys than girls of those ages. Between 2½ and 3 and 6 and 6½, there were no sex differences. Girls between the ages of about 3 and 6 played more with neutral toys than boys did. Males between 2½ and 3 and 6 and 6½ played more with neutral toys. Thus, the youngest (n = 4) and oldest (n = 8) age groups created the interaction. There was no interaction effect for the female toys.

Sex was also significant ($F$ = 9.40; $df$ = 2,96), accounting for 16 percent of the variance. Girls ($M$ = .32, $sd$ = .29) played more with female toys than boys did ($M$ = .17; $sd$ = .20). They ($M$ = .29; $sd$ = .29) played less with male toys than boys did ($M$ = .54; $sd$ = .31). Girls ($M$ = .38; $sd$ = .33) played slightly more with neutral toys than boys did ($M$ = .28; $sd$ = .28). Examining these means across toy types within each sex also showed that girls played about equally with all three categories of toys, while boys spent the majority of their time with male toys.

No other effects were significant.

Consistency between verbal toy sex-typing and sex-typed play. Children were given three scores to reflect the match between the three aspects of their verbal sex-typing and their play with the nine toys. One score reflected the proportion of time a child spent playing with toys s/he verbally attributed to the opposite sex. A second measured the proportion of play time spent with toys the child said s/he would not want to play with. The third showed the proportion of time children spent playing with toys they recalled.

The only variable to show any significance was the match between toy play and recall. As would be expected, age was related to this match score ($F$ = 8.35; $df$ = 1,71; $r$ = .32), sharing 11 percent of the variance.

Older children spent more time playing with toys they recalled than younger children did. Total gender knowledge score approached significance ($F$ = 8.42; $df$ = 1,66; $r$ = .34), sharing 11 percent of the variance. Higher gender knowledge scores were associated with longer times spent playing with recalled toys.

Comparison between Age, Gender Knowledge Scores, and Classification Scores

Age is a variable considered to be primarily associated with social learning. Classification skill is a general cognitive variable, and gender knowledge is a cognitive variable associated specifically with gender.

Social learning views attach major importance to the former variable, cognitive development to the latter two. All three are interrelated to some extent: age and classification ($r$ = .40), gender knowledge and age ($r$ = .49), and classification and gender knowledge ($r$ = .49). To determine the relative importance of each in the sex-typing scores in this study, the proportion of variance accounted for by each, whether statistically significant or not, in relation to each sex-typing measure is listed in Table 1.

As the table shows, the responses to some instruments share about equal amounts of variance with all three variables. For example, none of the three variables was related to sex-typed toy play behavior. All three variables shared about 10 percent of the variance with the match between a child's toy play behavior and recall responses on the toy verbal instrument.

However, there are some large differences among the variables for some of the sex-typing instruments. Age is clearly strongest for occupational attributions, toy attributions, and number of toys recalled. Gender knowledge is most important in the attributions of peer behaviors,

Table 1. Percent variance shared by age, gender knowledge scores, and classification skills with each sex-typing instrument

| Sex-typing instrument | Age | Gender knowledge | Classification |
|---|---|---|---|
| Peer stereotypes (attributions) | 5.8 | 17.7 | 8.5 |
| Occupation stereotypes | | | |
| Attributions | 13.3 | 6.2 | 6.0 |
| Service preferences | 4.4 | 1.4 | 6.8 |
| Reality | 13.0 | 6.6 | 11.8 |
| Consistency | 15.2 | 7.4 | 12.6 |
| Toy stereotypes (verbal) | | | |
| Attributions | 25.3 | 17.1 | 9.7 |
| Personal choices | 6.9 | 16.1 | 5.8 |
| Recall | 18.4 | 8.4 | 6.4 |
| Consistency | 23.9 | 39.0 | 10.4 |
| Toy play | 2.5 | 2.7 | 1.6 |
| Toy verbal-play consistency | | | |
| Attribution to opposite sex and play | 0.2 | 0.0 | 0.3 |
| "No" personal preference and play | 0.2 | 0.8 | 1.7 |
| Recall and play | 10.5 | 11.3 | 10.1 |

personal choices of toys, and consistency across verbal toy aspects. Classification scores are never clearly most important but in the case of occupational consistency scores contribute nearly as much as age and more than gender knowledge.

## Discussion

Overall, there was a great deal of agreement between the two sexes, the two ethnic groups, and across ages about verbal and behavioral sex-typing. Ethnicity by itself was not a significant factor in relation to any of the sex-typing measures. Sex, age, and their interactions sometimes were significant. In addition, the children as a group were less sex-typed about the sex-typed categories than were adults (as in the toy attribution instrument) or reality, as measured by the census (as in the occupational attribution measure).

Within the sex-typing instruments, the results often depended on what kind of question was asked (e.g., attribution to the general population or personal choice) and which sex-typed category was being considered (i.e., male, female, or neutral). Within the occupation instrument, three different questions were asked about each job. The children were asked for their sex-typed attributions for adults in general, their own preference regarding the sex of the adult they would want to do the job for them, and the sex of people they have seen doing the job. Children, across age, cognitive, sex, and ethnic categories, agreed on their general attributions and on their reality judgments. They were moderately sex-typed in the culturally appropriate direction on their attributions and perceived the culturally appropriate sex doing the job. However, service preference responses to male and female jobs showed quite a different pattern. Girls preferred women to perform the female jobs more than the boys, who were quite neutral, while boys preferred men in the male jobs more than the girls, who were quite neutral. So, for example, even though boys agreed with girls that women would like the female jobs best and that these jobs are generally performed by women, they were neutral in their own personal service preference, while girls strongly preferred women.

The opposite was true for male jobs. The difference must be due to the personal choice children are given in the service preference question. Thus, children do differentiate among these three aspects of occupations. To obtain a clear picture of children's sex-typing of occupations, all three must be measured; although, indeed, these three aspects may not be exhaustive.

Consistency, or match, between the various aspects of occupational sex-typing is important to consider. Only the children's match between general attributions and census reality increased with age; their matches between service preferences and reality and attributions and service preferences did not change. Again, this may be due to the impersonal, general nature of attributions. A child's service preferences and perceptions of her/his own reality are much more personal and reflect the child's world, as opposed to the adult's world. In general, children were only moderately consistent. It would be interesting to compare these scores to adult consistency scores.

In general, no other research has been done which looks at this age range and ethnic blend of children. Tremaine, Schau, and Busch (1979) examined a larger age range of children and found significance with age and sex in several measures not found here. Significant results here, however, match those in Tremaine, Schau, and Busch.

Some variance occurs across the aspects of verbal toy sex-typing, but not as much as with occupations. The interesting patterns in these results are due to the differences among sex-typed toy categories. The attribution questions were designed to measure children's attitudes about what toys "children" would like to play with. The preference questions asked for a personal choice regarding each toy. The recall question was asked to examine possible differences in recall by sex-typed toy category.

In general, the children considered the female and neutral toys as of interest to both sexes and the male toys of moderately more interest to boys. However, only the female and neutral toys were important in the significant effects. Both boys and girls agreed in their attributions of male and female toys, but boys attributed neutral toys more to males and girls more to females. Children across the age range agreed in their attributions of male and neutral toys, but ascribed the female toys to girls more with increasing age. Thus, in general, children did not become more sex-typed with increasing age. This result does not agree with the results from the older studies on verbal toy choices (see the literature section). A possible reason for this may be the inclusion of the neutral ("both") category response in our study.

The pattern is different in personal preferences; the only toy category of importance was male toys. Boys had a higher interest in male toys than girls did, while the sexes did not differ in interest on female or neutral toys. Again, the result for female toys does not support the older studies on verbal toy choices. Also, boys and girls did not change their interests in female and neutral toys across age; with male toys, boys' interest remained high, while girls' decreased with age. Overall, interest in playing with all of the toys was high. These findings also contradict the ideas of many parents, who believe that their child is interested only in "appropriate" sex-typed toys (Schau, Kahn, Diepold, & Cherry, 1979).

For recall, more male and female toys were remembered with increasing age. Neutral toys did not show this effect. There were no effects in relationship to the children's consistency across these three aspects.

Again, the results show that children differentiate between general attributions and personal preferences of toys. Both aspects are

important for a general understanding of sex-typing in the area of toy preference.

In our behavioral toy play measure, boys played most with masculine toys and less but equally with feminine and neutral toys. Girls, however, played about equally with all three categories of toys. These results are not in agreement with several of the studies discussed in the literature review; they are in basic agreement with Schau, Kahn, Diepold, and Cherry (1979).

Ethnicity was a significant factor on both cognitive measures: White children had higher classification and total gender constancy scores than Spanish-language heritage children. Age was positively related to classification scores and gender knowledge scores, although the latter effect was due primarily to the strong relationship for Whites which did not exist for the Spanish-language heritage children. Due to the fact that the Hispanic sample came primarily from a lower-income care center, it is not possible to know if it is ethnicity, social class, or a combination of the two operating in relation to the cognitive results. Overall, though, our whole sample's average classification score of 1.82/5 was almost one full point below the average score of 2.71 from White 3- and 5-year-old children in a Midwest sample (Tremaine, 1977).

Clearly, the responses to some of the sex-typing instruments are about equally related, or sometimes unrelated, to age, classification skill, and gender knowledge (i.e., toy play, the match scores between toy play and toy verbal, and the match between recall and toy play). Age is clearly strongest for some instruments (i.e., occupational attributions, toy attributions, and number of toys recalled). Gender knowledge is strongest from some instruments (i.e., attributions of peer behaviors, personal toy choices, and match scores across verbal toy aspects).

Classification skill is never most important. These results imply that social learning aspects are more important in some cases, cognitive structure as it directly relates to gender is important in others, and that both are sometimes equally important. Since sex-role stereotyping is a method of classifying people into categories based on the attribute of gender, logically classification skill should influence sex-typing. The results from this study provide little support for that view. The gender knowledge instrument actually measures the cognitive use of the attribute of gender in classification; and indeed it is related to several sex-typing measures. These results pose a key question: why is age related to specific instruments and gender knowledge to others?

The methodology in this study varies from much of the previous research. When children were asked sex-typing questions or put in the play situation with toys, they were provided with sex-typed (i.e., males, females) and non-sex-typed (i.e., both females and males) options. This procedure measures flexibility in their attitudes. Most other research has used only sex-typed responses, which actually measured knowledge (Garrett, Ein, & Tremaine, 1977). Our sample included White and Spanish-language heritage children from the lower- and middle-classes, as opposed to the middle-class White children used in most other research. We validated the sex-typed aspects of our items by using adult samples (e.g., toys), past research (e.g., peer behaviors), or an impersonal measure of reality (e.g., the census for occupations). All of these methodological aspects may result in differences from previous research; especially with children, responses depend on who you ask, what you ask, and how you ask it.

For this particular study, we collected several different kinds of sex-typing data from the same children. In this sense, this project

is somewhat exploratory. We hope to further interrelate the various aspects and, in future research, to explore other areas of cognitive development, social learning theory, and sex-typing.

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